

Honors Chemistry Final Exam

Equations and Constants

'08 - '09

Constants

$N_{\text{Avogadro}} = 6.02 \times 10^{23}$ particles	$H_{\text{fus water}} = 334 \text{ J/g}$ or 80 cal/g
Density of Hg = 13.6 g/mL	$H_{\text{vap water}} = 2260 \text{ J/g}$ or 541 cal/g
$R = 0.0821 \text{ L atm/mol K}$	$C_{\text{ice}} = 2.1 \text{ J/g}^\circ\text{C}$ or $0.50 \text{ cal/g}^\circ\text{C}$
$M_e = 9.109 \times 10^{-31} \text{ kg}$	$C_{\text{water}} = 4.18 \text{ J/g}^\circ\text{C}$ or $1.0 \text{ cal/g}^\circ\text{C}$
$M_{\text{proton}} = 1.67 \times 10^{-27} \text{ kg}$	$C_{\text{steam}} = 2.0 \text{ J/g}^\circ\text{C}$ or $0.44 \text{ cal/g}^\circ\text{C}$
	$C_{\text{steel}} = 0.11 \text{ cal/g}^\circ\text{C}$
	$C_{\text{ethanol}} = 0.38 \text{ cal/g}^\circ\text{C}$

Conversions

$1 \text{ lb} = 453.6 \text{ g}$	$1 \text{ cal} = 4.184 \text{ J}$
$1 \text{ in} = 2.54 \text{ cm}$	
$1 \text{ qt} = 0.946 \text{ L}$	$1 \text{ m} = 1000 \text{ mm}$
$1 \text{ atm} = 101.23 \text{ kPa}$	$1 \text{ mole of gas at STP} = 22.4 \text{ L}$
$1 \text{ atm} = 760 \text{ mmHg}$	
$1 \text{ atm} = 760 \text{ Torr}$	

Equations

$$PV = nRT$$

$$Q = mC(T_f - T_i)$$

$$\frac{P_1 V_1}{n_1 T_1} = \frac{P_2 V_2}{n_2 T_2}$$

$$Q = mH$$

$$K = ^\circ\text{C} + 273$$

$$\% \text{Comp} = (\text{Parts/Whole}) \times 100$$

$$D = m/V$$

$$\% \text{Error} = [(\text{Exp} - \text{Theor})/\text{Theor}] \times 100$$

$$\frac{R_1}{R_2} = \sqrt{\frac{m_2}{m_1}}$$

$$\% \text{Yield} = [\text{Exp}/\text{Theor}] \times 100$$

$$M = \text{moles}/1 \text{ L}$$

$$M \quad _ \quad _ \quad \text{K h da} \quad \square \quad \text{d c m} \quad _ \quad _ \quad \mu$$